

REMARKS

Claims 1-15 and 17-35 are currently pending in the application. Claims 10 and 33 have been amended. Applicant notes that the amendments to dependent claims 10 and 33 are for the purposes of consistency and does not believe these amendments raise any new issues regarding patentability.

35 U.S.C. § 103 Rejection

Claims 1-15 and 17-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Harada, et al., U.S. Patent 6,198,362, in view of Roy et al., “ESR and ESL of Ceramic Capacitor Applied to Decoupling Applications” and Novak, “Reducing Simultaneous Switching Noise and EMI on Ground/Power Planes by Dissipative Edge Termination”. Applicant respectfully traverses this rejection.

The cited references, taken singly or in combination, do not teach or suggest all of the elements of the independent claims. The teachings of the cited references are noted in the previous office action response.

Applicant’s independent claim 1 recites, in pertinent part:

“wherein the mounted inductance L_m of each of the n capacitors is less than or equal to $(0.2 \cdot n \cdot \mu_0 \cdot h)$, and wherein μ_0 is the permeability of free space, and wherein h is a distance between the planar conductors” (Emphasis added).

In the Office Action, the Examiner states that the highlighted limitation is inherent and further states that the “inherency of the mounted inductance being less than or equal to L_p or $0.2 \cdot n \cdot \mu_0 \cdot h$ is based on the fact that the Harada et al. reference discloses that the undesired wave radiated from the power supply is suppressed, which is the requirement for the value of the mounted inductance (col. 7, lines col. 50-65 and figure 6). That is, the undesired electromagnetic wave would not be suppressed unless the mounted inductance is less than the limit recited in the independent claim.”

Applicant respectfully disagrees with the Examiner's assertion that an undesired electromagnetic wave would not be suppressed unless the mounted inductance is less than the limit recited in independent claim 1, and further respectfully disagrees that the cited limitation is inherent.

In response to the rejection, Applicant has attached herewith a paper entitled "Developing a Decoupling Methodology with SPICE for Multilayer Printed Circuit Boards." Applicant notes that this document was previously submitted as Reference A17 with the Information Disclosure Statement filed on May 9, 2001. On page 3, first column, 3rd paragraph, this document states:

"To begin, some capacitors are place along the board edges to tackle the board resonances. ... Given that the capacitor provides optimum attention at its series resonant frequency, f_o , a value of C can be chosen based on prior knowledge of the inductance ($L = 0.5\text{nH}$ in this case) using equation (2).

$$C = \frac{1}{L(2\pi f_o)^2} \text{ farads (2)}"$$

Re-arranging the equation presented on Page 3 of the document to solve for inductance, we have:

$$L = \frac{1}{C(2\pi f_o)^2} \text{ henries.}$$

Thus, according to this equation, an inductance value for suppressing a resonance at a given resonant frequency is dependent upon the capacitance of a chosen capacitor and the resonant frequency of the capacitor. In contrast to the equation above wherein the inductance is dependent upon the capacitor's capacitance and resonant frequency, the inductance value calculated using the recited claim limitation is dependent upon the number of capacitors (n) and the separation distance between the planar conductors (h),

i.e. $L_m \leq 0.2 \cdot n \cdot \mu_0 \cdot h$. Since the inductance values determined by the two different expressions are dependent entirely on different and unrelated quantities, Applicant therefore submits that the limit recited in independent claim 1 is not inherent, as the Examiner has stated in the Office Action.

In addition to the reasons stated above in regard to claim 1, Applicant notes that the mounted inductance (L_m) limit recited in claims 8 and 17 is different from that which is recited in claim 1, as it is based only on the inductance of the electrical power distribution structure (L_p). Thus, in addition to the arguments presented above explaining why the limitation of claim 1 is not an inherent limitation, Applicant further submits that the Examiner's argument that the limitation recited in claim 8 is an inherent limitation is also erroneous, as the different limitations recited in independent claims 1 and 8 (and 17) cannot both be inherent.

For at least these reasons, Applicant submits that a case of obviousness has not been established. Accordingly, removal of the 35 U.S.C. § 103(a) rejection is respectfully requested.

Allowed Claims:

Claims 31-35 were allowed. Applicant appreciates Examiner's consideration of these claims.

CONCLUSION

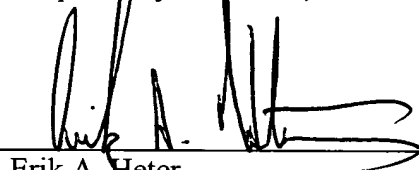
Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account No. 50-1505/5181-62800/BNK.

Also enclosed herewith are the following items:

☐ Return Receipt Postcard

Respectfully submitted,



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